

Appl. No. 10/786,890
Amdt. Dated August 8, 2006
Reply to Office Action of May 8, 2006

Attorney Docket No. 81880.0114
Customer No.: 26021

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REMARKS/ARGUMENTS:

Claims 1-11 are pending in the application. Reexamination and reconsideration of the application, in view of the following remarks, are respectfully requested.

The present invention relates to a print mask for screen printing used for printing a printing paste onto a wafer so as to form bumps or protrusion electrodes on barrier metal layers provided on the wafer. The present invention includes a method of electronic components by using the print mask, and relates particularly to a method of manufacturing a flip-chip integrated circuit that is mounted on a circuit board by face-down bonding. (Applicant's specification, at p. 1, lines 6-13).

CLAIM REJECTIONS UNDER 35 U.S.C. §102:

Claims 1, 2, and 4-6 stand rejected under 35 U.S.C. §102(b) as being anticipated by Sasakuri et al. (JP2002-134895). The Applicant respectfully traverses this rejection.

Claim 1 is as follows:

A print mask used to form bumps on barrier metal layers of a wafer comprising a plurality of elongated perforations disposed in linear arrangement for applying a paste via the perforations onto an object of printing,

wherein each of said perforation includes an edge disposed along the longitudinal direction, said edge being inclined with respect to the direction perpendicular to the direction of arranging the perforations.

At page 3 of the Office Action, the Office relies on Figures 2, 3, and 6 of Sasakuri to demonstrate that Sasakuri teaches a print mask comprising a plurality of elongated perforations, wherein each of "perforation includes an edge disposed

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along the longitudinal direction", and wherein the edge is "inclined with respect to the direction perpendicular to the direction of arranging the perforations."

The Applicant respectfully disagrees. First, the "elongated perforations" of present claim 1 represent perforations formed in an elongated shape such as an elongated ellipse, rectangle or parallelogram (Applicant's specification, at p. 13, lines 3-6). None of drawings 2, 3 and 6 of Sasakuri teach the "elongated perforations" of claim 1. Rather, Sasakuri merely discloses normal, "circular" perforations. This is clear from drawing 3 and paragraph [0014] of Sasakuri, which states in the last sentence, "A plurality of circular perforations 17d are formed in a lattice-like arrangement in the forming region."

In addition according to claim 1 of the present invention, the edges 71 of the perforations along the longitudinal direction thereof, are disposed such that the edges 71 are inclined with respect to the direction perpendicular to the direction of arranging the perforations. (Figure 1). However, "an edged disposed along longitudinal direction" of a perforation is not taught or suggested by the "circular perforation" of Sasakuri. In fact, Applicant respectfully submits that there is no teaching or suggestion in Sasakuri about edges being inclined with respect to the direction perpendicular to the direction of arranging the perforations as required by claim 1.

In light of the foregoing, Applicant respectfully submits that Sasakuri could not have anticipated or rendered obvious claim 1, because Sasakuri fails to teach or suggest each and every claim limitation. Withdrawal of the rejection and allowance of claim 1 is respectfully requested.

Claim 2 depends from claim 1 and cannot be anticipated or rendered obvious for at least the same reasons as claim 1. Withdrawal of this rejection and allowance of claim 2 is thus respectfully requested.

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Attorney Docket No. 81880.0114
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Claim 4 is as follows:

A print mask comprising a number of perforations disposed in a single row or a plurality of rows for applying and printing a printing paste via the perforations onto a wafer so as to form bumps on barrier metal layers provided on the wafer,

wherein the density of arrangement of said perforations is set differently from region to region within the arrangement and the opening area of said perforation is set smaller in the region of an arrangement where the density of arrangement of said perforations is higher.

Claim 4 has following limitations: (a) "the density of arrangement of said perforations is set differently from region to region within the arrangement"; and b) "the opening area of said perforation is set smaller in the region of an arrangement where the density of arrangement of said perforations is higher."

With respect to limitation (a) of claim 4, the Office states at page 3, lines 6-7 of the Office Action that Sasakuri discloses a print mask wherein perforations are disposed in a plurality of rows and the density of said perforation is set individually for each row.

Even though Sasakuri discloses that the opening area of perforations 17d are gradually reduced toward the edge in region B (Sasakuri, drawing 3, paragraph [0015]), the density of perforation in Sasakuri is not set individually but rather set constant. (As shown in drawings 2 and 3 of Sasakuri, which indicate that the number of perforations in each row are all the same.) Accordingly, Sasakuri fails to teach that the density of arrangement of said perforations is set differently from region to region within the arrangement.

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With respect to limitation (b) of claim 4, the Office is silent. Sasakuri teaches that the opening areas of perforations 17d are gradually reduced toward the edge in region B (Sasakuri, drawing 3, paragraph [0015]). However, as discussed above, the density of perforations is constant in Sasakuri. In other words, the opening area in Sasakuri does not depend on the density of perforations. Consequently, Sasakuri fails to teach or suggest limitation (b) of claim 4.

In light of the foregoing, Applicant respectfully submits that Sasakuri could not have anticipated or rendered obvious claim 4, because Sasakuri fails to teach or suggest each and every claim limitation.

Claims 5 and 6 depend from claim 4 and cannot be anticipated or rendered obvious for at least the same reasons as claim 4. Withdrawal of these rejections is thus respectfully requested.

CLAIM REJECTIONS UNDER 35 U.S.C. §103:

Claim 3 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Sasakuri et al. (JP2002-134895). The Applicant respectfully traverses this rejection. Claim 3 depends from 1 and therefore, cannot be rendered obvious over Sasakuri for the reasons discussed above. Withdrawal of this rejection is thus respectfully requested.

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the application, in view of the foregoing remarks, are requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles, California telephone number (213) 337-6700 to discuss the steps necessary for placing the application in condition for allowance.

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If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,

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Date: August 8, 2006

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